WHAT IS CLAIMED IS:

1. An ingestible device, arranged for traveling within a gastrointestinal tract of a body, comprising:

a probe, operative to perform, along said gastrointestinal tract, a diagnostic image by nuclear radiation of a radiophamaceutical;

data-handling apparatus, in signal communication with said probe, for receiving and handling imaging data, generated by said probe;

a power source, for powering said probe and data-handling apparatus; and

a shell, which encapsulates said probe, data-handling apparatus, and power source within.

2. The ingestible device of claim 1, wherein said probe comprises a nuclear-radiation detector, arranged for detecting gamma and beta radiation.

3. The ingestible device of claim 2, wherein said nuclear-radiation detector is gated to a narrow energy range, associated with a particular radioisotope.

4. The ingestible device of claim 2, wherein said nuclear-radiation detector is gated to at least two narrow energy ranges.

5. The ingestible device of claim 1, wherein said probe comprises a plurality of nuclear-radiation detectors, arranged around the external surface of said ingestible device, for detecting gamma and beta radiation.

6. The ingestible device of claim 5, wherein some of said plurality of nuclear-radiation detectors may be gated to a specific narrow energy range, while others may be gated to a different narrow energy range.

7. The ingestible device of claim 2, wherein said nuclear-radiation detector is not collimated, to detect nuclear radiation impinging at any angle.

8. The ingestible device of claim 1, arranged as a compton camera.

9. A method of nuclear imaging, comprising:

scanning a radioactivity emitting source of at least two photon energies with at least one nuclear radiation detector, mounted on an ingestible device, and obtaining a count rate for the at least two photons;

monitoring the position of the ingestible device; and

calculating the depth of the radioactivity emitting source, at each position, based on the different attenuation of photons of different energies, emitted from the radioactivity emitting source.

10. The method of claim 9, and further including constructing an image of the radioactivity emitting source.

11. The method of claim 9, wherein the monitoring takes place at very short time intervals of between 100 and 200 miliseconds.

12. The method of claim 9, wherein said nuclear-radiation detector is not collimated, to detect nuclear radiation impinging at any angle.

13. The method of claim 9, and further including image reconstruction by deconvolution algorithms.

14. The method of claim 9, wherein said ingestible device comprises a nuclear-radiation detector, arranged for detecting gamma and beta radiation.

15. The method of claim 9, wherein said ingestible device comprises a plurality of nuclear-radiation detectors, arranged around the external surface of said ingestible device, for detecting gamma and beta radiation.